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d his

     (FILE 'HOME' ENTERED AT 12:07:28 ON 15 OCT 2004)

     FILE 'BIOSIS, CAPLUS, EMBASE, MEDLINE, CANCERLIT, JAPIO' ENTERED AT
     12:07:48 ON 15 OCT 2004
L1              4 S (PASSIVATION MONOLAYER)
L2              4 DUPLICATE REMOVE L1 (0 DUPLICATES REMOVED)
L3              1 S L2 AND ELECTRODE?
L4          10730 S (SELF ASSEMBLED MONOLAYER?)
L5              1 S L4 AND (PASSIVATION AGENT)
L6              0 S (PAASIVATION AGENT)
L7            193 S (PASSIVATION AGENT)
L8              5 S L7 AND MONOLAYER?
L9              5 DUPLICATE REMOVE L8 (0 DUPLICATES REMOVED)
L10             2 S L9 AND ELECTRODE?
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d his

     (FILE 'HOME' ENTERED AT 12:07:28 ON 15 OCT 2004)

     FILE 'BIOSIS, CAPLUS, EMBASE, MEDLINE, CANCERLIT, JAPIO' ENTERED AT
     12:07:48 ON 15 OCT 2004
L1              4 S (PASSIVATION MONOLAYER)
L2              4 DUPLICATE REMOVE L1 (0 DUPLICATES REMOVED)
L3              1 S L2 AND ELECTRODE?
L4          10730 S (SELF ASSEMBLED MONOLAYER?)
L5              1 S L4 AND (PASSIVATION AGENT)
L6              0 S (PAASIVATION AGENT)
L7            193 S (PASSIVATION AGENT)
L8              5 S L7 AND MONOLAYER?
L9              5 DUPLICATE REMOVE L8 (0 DUPLICATES REMOVED)
L10             2 S L9 AND ELECTRODE?
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ANSWER 3 OF 4 CAPLUS COPYRIGHT 2004 ACS on STN
AN 1996:326332 CAPLUS
DN 125:178469
ED Entered STN: 05 Jun 1996
TI Nanocrystal gold molecules
AU Whetten, Robert L.; Khoury, Joseph T.; Alvarez, Marcos M.; Murthy, Srihari; Vezmar, Igor; Wang, Z. L.; Stephens, Peter W.; Cleveland, Charles L.; Luedtke, W. D.; Landman, Uzi
CS Sch. Phys. Chem., Georgia Inst. Technol., Atlanta, GA, 30332, USA
SO Advanced Materials (Weinheim, Germany) (1996), 8(5), 428-33
CODEN: ADVMEW; ISSN: 0935-9648
PB VCH
DT Journal
LA English
CC 66-5 (Surface Chemistry and Colloids)
Section cross-reference(s): 65, 75
AB Au nanocrystals passivated by self-assembled monolayers of straight-chain alkylthiolate mols. were obtained as highly purified mol. materials of high intrinsic stability. Evidence is presented for a predicted discrete sequence of energetically optimal face centered cubic structures of a truncated octahedral morphol. motif. The nanocrystal materials have a propensity to form extended superlattices.
ST gold nanocrystal **passivation monolayer** property; thiol surfactant passivated monolayer gold; morphol gold nanocrystal passivated monolayer; structure gold nanocrystal passivated monolayer
IT Surfactants
(gold nanocrystals passivated by self-assembled Dodecanethiol monolayers)
IT Mass spectra
Surface structure
(of gold nanocrystals passivated by self-assembled monolayers of straight-chain alkylthiolates)
IT Crystallites
(nanocrystals, of gold passivated by self-assembled monolayers of straight-chain alkylthiolates)
IT 112-55-0, 1-Dodecanethiol
RL: MOA (Modifier or additive use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(gold nanocrystals passivated by self-assembled monolayers of)
IT 7440-57-5, Gold, properties
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process)
(nanocrystals passivated by self-assembled monolayers and properties of)

ANSWER 3 OF 4 CAPLUS COPYRIGHT 2004 ACS on STN
AN 1996:326332 CAPLUS
DN 125:178469
ED Entered STN: 05 Jun 1996
TI Nanocrystal gold molecules
AU Whetten, Robert L.; Khoury, Joseph T.; Alvarez, Marcos M.; Murthy, Srihari; Vezmar, Igor; Wang, Z. L.; Stephens, Peter W.; Cleveland, Charles L.; Luedtke, W. D.; Landman, Uzi
CS Sch. Phys. Chem., Georgia Inst. Technol., Atlanta, GA, 30332, USA
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DT Journal
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ST gold nanocrystal **passivation monolayer** property; thiol surfactant passivated monolayer gold; morphol gold nanocrystal passivated monolayer; structure gold nanocrystal passivated monolayer
IT Surfactants
(gold nanocrystals passivated by self-assembled Dodecanethiol monolayers)
IT Mass spectra
Surface structure
(of gold nanocrystals passivated by self-assembled monolayers of straight-chain alkylthiolates)
IT Crystallites
(nanocrystals, of gold passivated by self-assembled monolayers of straight-chain alkylthiolates)
IT 112-55-0, 1-Dodecanethiol
RL: MOA (Modifier or additive use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(gold nanocrystals passivated by self-assembled monolayers of)
IT 7440-57-5, Gold, properties
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process)
(nanocrystals passivated by self-assembled monolayers and properties of)

ANSWER 2 OF 4 CAPLUS COPYRIGHT 2004 ACS on STN
AN 1999:16013 CAPLUS
DN 130:144567
ED Entered STN: 12 Jan 1999
TI Alkyl-terminated Si(111) surfaces: A high-resolution, core level photoelectron spectroscopy study
AU Terry, Jeff; Linford, Matthew R.; Wigren, Christer; Cao, Renyu; Pianetta, Piero; Chidsey, Christopher E. D.
CS Stanford University, Stanford, CA, 94309, USA
SO Journal of Applied Physics (1999), 85(1), 213-221
CODEN: JAPIAU; ISSN: 0021-8979
PB American Institute of Physics
DT Journal
LA English
CC 66-4 (Surface Chemistry and Colloids)
Section cross-reference(s): 22, 73
AB The bonding of alkyl monolayers to Si(111) surfaces has been studied with high-resolution core level photoelectron spectroscopy (PES). Two very different wet-chemical methods have been used to prepare the alkyl monolayers: (i) Olefin insertion into the H-Si bond of the H-Si(111) surface, and (ii) replacement of Cl on the Cl-Si(111) surface by an alkyl group from an alkyllithium reagent. In both cases, PES has revealed a C 1s component shifted to lower binding energy and a Si 2p component shifted to higher binding energy. Both components are attributed to the presence of a C-Si bond at the interface. Along with photoelectron diffraction data [Appl. Phys. Lett. 71, 1056, (1997)], these data are used to show that these two synthetic methods can be used to functionalize the Si(111) surface.
ST alkyl terminated silicon surface photoelectron spectroscopy; passivation chlorine hydrogen terminated silicon
IT Annealing
(annealing alkyl monolayers to Si(111) surfaces studied with high-resolution core level photoelectron spectroscopy)
IT Adsorbed monolayers
Alkyl groups
Chemical chains
(bonding of alkyl monolayers to Si(111) surfaces studied with high-resolution core level photoelectron spectroscopy)
IT Passivation
(novel alkyl **passivation monolayers** on Si(111) surfaces studied with high-resolution core level photoelectron spectroscopy)
IT 2229-07-4D, Methyl, reaction production with Si surface 2492-36-6D, Butyl, reaction production with Si surface 2672-01-7D, Pentyl, reaction production with
Si surface 34448-85-6D, Octadecyl, reaction production with Si surface 49765-51-7D, Decyl, reaction production with Si surface
RL: MOA (Modifier or additive use); PRP (Properties); USES (Uses)
(alkyl-terminated silicon prepared by Olefin insertion into the H-Si bond of the H-Si(111) surface, and replacement of Cl on the Cl-Si(111) surface by an alkyl group from an alkyllithium reagent)
IT 12385-13-6, Hydrogen atomic, reactions 22537-15-1, Chlorine atomic, reactions
RL: MOA (Modifier or additive use); RCT (Reactant); RACT (Reactant or reagent); USES (Uses)
(alkyl-terminated silicon prepared by Olefin insertion into the H-Si bond of the H-Si(111) surface, and replacement of Cl on the Cl-Si(111) surface by an alkyl group from an alkyllithium reagent)
IT 109-72-8, Butyllithium, reactions 917-54-4, Methyllithium
RL: RCT (Reactant); RACT (Reactant or reagent)
(alkyl-terminated silicon prepared by Olefin insertion into the H-Si bond of the H-Si(111) surface, and replacement of Cl on the Cl-Si(111) surface by an alkyl group from an alkyllithium reagent)

ANSWER 2 OF 4 CAPLUS COPYRIGHT 2004 ACS on STN
AN 1999:16013 CAPLUS
DN 130:144567
ED Entered STN: 12 Jan 1999
TI Alkyl-terminated Si(111) surfaces: A high-resolution, core level photoelectron spectroscopy study
AU Terry, Jeff; Linford, Matthew R.; Wigren, Christer; Cao, Renyu; Pianetta, Piero; Chidsey, Christopher E. D.
CS Stanford University, Stanford, CA, 94309, USA
SO Journal of Applied Physics (1999), 85(1), 213-221
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PB American Institute of Physics
DT Journal
LA English
CC 66-4 (Surface Chemistry and Colloids)
Section cross-reference(s): 22, 73
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ST alkyl terminated silicon surface photoelectron spectroscopy; passivation chlorine hydrogen terminated silicon
IT Annealing
(annealing alkyl monolayers to Si(111) surfaces studied with high-resolution core level photoelectron spectroscopy)
IT Adsorbed monolayers
Alkyl groups
Chemical chains
(bonding of alkyl monolayers to Si(111) surfaces studied with high-resolution core level photoelectron spectroscopy)
IT Passivation
(novel alkyl **passivation monolayers** on Si(111) surfaces studied with high-resolution core level photoelectron spectroscopy)
IT 2229-07-4D, Methyl, reaction production with Si surface 2492-36-6D, Butyl, reaction production with Si surface 2672-01-7D, Pentyl, reaction production with
Si surface 34448-85-6D, Octadecyl, reaction production with Si surface 49765-51-7D, Decyl, reaction production with Si surface
RL: MOA (Modifier or additive use); PRP (Properties); USES (Uses)
(alkyl-terminated silicon prepared by Olefin insertion into the H-Si bond of the H-Si(111) surface, and replacement of Cl on the Cl-Si(111) surface by an alkyl group from an alkyllithium reagent)
IT 12385-13-6, Hydrogen atomic, reactions 22537-15-1, Chlorine atomic, reactions
RL: MOA (Modifier or additive use); RCT (Reactant); RACT (Reactant or reagent); USES (Uses)
(alkyl-terminated silicon prepared by Olefin insertion into the H-Si bond of the H-Si(111) surface, and replacement of Cl on the Cl-Si(111) surface by an alkyl group from an alkyllithium reagent)
IT 109-72-8, Butyllithium, reactions 917-54-4, Methyllithium
RL: RCT (Reactant); RACT (Reactant or reagent)
(alkyl-terminated silicon prepared by Olefin insertion into the H-Si bond of the H-Si(111) surface, and replacement of Cl on the Cl-Si(111) surface by an alkyl group from an alkyllithium reagent)

IT 109-67-1, 1-Pentene 112-88-9, 1-Octadecene 872-05-9, 1-Decene
RL: RCT (Reactant); RACT (Reactant or reagent)
(alkyl-terminated silicon prepared by Olefin insertion of 1-alkenes into the H-Si bond of the H-Si(111) surface, and replacement of Cl on the Cl-Si(111) surface by an alkyl group from an alkyllithium reagent)

IT 7440-21-3, Silicon, properties
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process)
(hydrogen-, chlorine-, alkyl-terminated; bonding of alkyl monolayers to Si(111) surfaces studied with high-resolution core level photoelectron spectroscopy)

RE.CNT 23 THERE ARE 23 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

(1) Chidsey, C; Fourth International Symposium on Cleaning Technology in Semiconductor Device Manufacturing, (unpublished) 1995
(2) Coon, P; J Vac Sci Technol B 1992, V10, P221 CAPLUS
(3) Eastman, D; J Vac Sci Technol 1982, V20, P609 CAPLUS
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(5) Himpsel, F; Phys Rev B 1988, V38, P6084 CAPLUS
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(8) Krull, U; Proc SPIE 1988, V906, P49 CAPLUS
(9) Kusunoki, I; Appl Surf Sci 1992, V59, P95 CAPLUS
(10) Lapiano-Smith, D; J Appl Phys 1993, V74, P5842 CAPLUS
(11) Larkins, G; Thin Solid Films 1989, V180, P217 CAPLUS
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(13) Linford, M; J Am Chem Soc 1995, V117, P3145 CAPLUS
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(15) Outka, D; J Chem Phys 1988, V88, P4076 CAPLUS
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(18) Stinespring, C; J Appl Phys 1989, V65, P1733 CAPLUS
(19) Taylor, P; J Appl Phys 1989, V65, P1099 CAPLUS
(20) Terry, J; Appl Phys Lett 1997, V71, P1056 CAPLUS
(21) Terry, J; J Vac Sci Technol A 1994, V12, P1869 CAPLUS
(22) Terry, J; Nucl Instrum Methods Phys Res B 1997, V133, P97
(23) Terry, J; to be published

IT 109-67-1, 1-Pentene 112-88-9, 1-Octadecene 872-05-9, 1-Decene
RL: RCT (Reactant); RACT (Reactant or reagent)
(alkyl-terminated silicon prepared by Olefin insertion of 1-alkenes into the H-Si bond of the H-Si(111) surface, and replacement of Cl on the Cl-Si(111) surface by an alkyl group from an alkyllithium reagent)

IT 7440-21-3, Silicon, properties
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process)
(hydrogen-, chlorine-, alkyl-terminated; bonding of alkyl monolayers to Si(111) surfaces studied with high-resolution core level photoelectron spectroscopy)

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(6) Hricovini, K; Phys Rev Lett 1993, V70, P1992 CAPLUS
(7) Hufner, S; Photoelectron Spectroscopy 1995
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(9) Kusunoki, I; Appl Surf Sci 1992, V59, P95 CAPLUS
(10) Lapiano-Smith, D; J Appl Phys 1993, V74, P5842 CAPLUS
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(12) Linford, M; J Am Chem Soc 1993, V115, P12631 CAPLUS
(13) Linford, M; J Am Chem Soc 1995, V117, P3145 CAPLUS
(14) Linford, M; PhD thesis Stanford University 1996
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(16) Outka, D; Phys Rev Lett 1987, V59, P1321 CAPLUS
(17) Schedel-Niedrig, T; J Phys: Condens Matter 1991, V3A, PS23
(18) Stinespring, C; J Appl Phys 1989, V65, P1733 CAPLUS
(19) Taylor, P; J Appl Phys 1989, V65, P1099 CAPLUS
(20) Terry, J; Appl Phys Lett 1997, V71, P1056 CAPLUS
(21) Terry, J; J Vac Sci Technol A 1994, V12, P1869 CAPLUS
(22) Terry, J; Nucl Instrum Methods Phys Res B 1997, V133, P97
(23) Terry, J; to be published

ANSWER 1 OF 4 CAPLUS COPYRIGHT 2004 ACS on STN

AN 2002:142026 CAPLUS

DN 136:287463

ED Entered STN: 22 Feb 2002

TI Nanoscale phosphorous atom arrays created using STM for the fabrication of a silicon-based quantum computer

AU O'Brien, J. L.; Schofield, S. R.; Simmons, M. Y.; Clark, Robert G.; Dzurak, Andrew S.; Curson, N. J.; Kane, Bruce E.; McAlpine, N. S.; Hawley, Marilyn E.; Brown, G. W.

CS Centre for Quantum Computer Technology, University of New South Wales, Sydney, 2052, Australia

SO Proceedings of SPIE-The International Society for Optical Engineering (2001), 4590(BioMEMS and Smart Nanostructures), 299-309
CODEN: PSISDG; ISSN: 0277-786X

PB SPIE-The International Society for Optical Engineering

DT Journal

LA English

CC 76-14 (Electric Phenomena)

AB Quantum computers offer the promise of formidable computational power for certain tasks. Of the various possible phys. implementations of such a device, silicon based architectures are attractive for their scalability and ease of integration with existing silicon technol. These designs use either the electron or nuclear spin state of single donor atoms to store quantum information. Here we describe a strategy to fabricate an array of single phosphorus atoms in silicon for the construction of such a silicon based quantum computer. We demonstrate the controlled placement of single phosphorus bearing mols. on a silicon surface. This has been achieved by patterning a hydrogen monolayer resist with a scanning tunneling microscope (STM) tip and exposing the patterned surface to phosphine (PH3) mols. We also describe preliminary studies into a process to incorporate these surface phosphorus atoms into the silicon crystal at the array sites.

ST STM lithog hydrogen desorption phosphine adsorption silicon quantum computer

IT Adsorbed monolayers
Chemisorption
Passivation
Scanning tunneling microscopy
Thermal decomposition
(nanoscale phosphorous atom arrays created using STM for the fabrication of a silicon-based quantum computer)

IT Desorption
(selective; nanoscale phosphorous atom arrays created using STM for the fabrication of a silicon-based quantum computer)

IT Lithography
(submicron, STM; nanoscale phosphorous atom arrays created using STM for the fabrication of a silicon-based quantum computer)

IT 7723-14-0, Phosphorus-31, processes
RL: CPS (Chemical process); DEV (Device component use); MOA (Modifier or additive use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(nanoscale phosphorous atom arrays created using STM for the fabrication of a silicon-based quantum computer)

IT 7440-21-3, Silicon, processes
RL: CPS (Chemical process); DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(nanoscale phosphorous atom arrays created using STM for the fabrication of a silicon-based quantum computer)

IT 7803-51-2, Phosphine
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); RCT (Reactant); PROC (Process); RACT (Reactant or reagent)
(nanoscale phosphorous atom arrays created using STM for the

ANSWER 1 OF 4 CAPLUS COPYRIGHT 2004 ACS on STN

AN 2002:142026 CAPLUS

DN 136:287463

ED Entered STN: 22 Feb 2002

TI Nanoscale phosphorous atom arrays created using STM for the fabrication of a silicon-based quantum computer

AU O'Brien, J. L.; Schofield, S. R.; Simmons, M. Y.; Clark, Robert G.; Dzurak, Andrew S.; Curson, N. J.; Kane, Bruce E.; McAlpine, N. S.; Hawley, Marilyn E.; Brown, G. W.

CS Centre for Quantum Computer Technology, University of New South Wales, Sydney, 2052, Australia

SO Proceedings of SPIE-The International Society for Optical Engineering (2001), 4590(BioMEMS and Smart Nanostructures), 299-309
CODEN: PSISDG; ISSN: 0277-786X

PB SPIE-The International Society for Optical Engineering

DT Journal

LA English

CC 76-14 (Electric Phenomena)

AB Quantum computers offer the promise of formidable computational power for certain tasks. Of the various possible phys. implementations of such a device, silicon based architectures are attractive for their scalability and ease of integration with existing silicon technol. These designs use either the electron or nuclear spin state of single donor atoms to store quantum information. Here we describe a strategy to fabricate an array of single phosphorus atoms in silicon for the construction of such a silicon based quantum computer. We demonstrate the controlled placement of single phosphorus bearing mols. on a silicon surface. This has been achieved by patterning a hydrogen monolayer resist with a scanning tunneling microscope (STM) tip and exposing the patterned surface to phosphine (PH3) mols. We also describe preliminary studies into a process to incorporate these surface phosphorus atoms into the silicon crystal at the array sites.

ST STM lithog hydrogen desorption phosphine adsorption silicon quantum computer

IT Adsorbed monolayers
Chemisorption
Passivation
Scanning tunneling microscopy
Thermal decomposition
(nanoscale phosphorous atom arrays created using STM for the fabrication of a silicon-based quantum computer)

IT Desorption
(selective; nanoscale phosphorous atom arrays created using STM for the fabrication of a silicon-based quantum computer)

IT Lithography
(submicron, STM; nanoscale phosphorous atom arrays created using STM for the fabrication of a silicon-based quantum computer)

IT 7723-14-0, Phosphorus-31, processes
RL: CPS (Chemical process); DEV (Device component use); MOA (Modifier or additive use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(nanoscale phosphorous atom arrays created using STM for the fabrication of a silicon-based quantum computer)

IT 7440-21-3, Silicon, processes
RL: CPS (Chemical process); DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(nanoscale phosphorous atom arrays created using STM for the fabrication of a silicon-based quantum computer)

IT 7803-51-2, Phosphine
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); RCT (Reactant); PROC (Process); RACT (Reactant or reagent)
(nanoscale phosphorous atom arrays created using STM for the

fabrication of a silicon-based quantum computer)
IT 12385-13-6, Hydrogen atom, processes
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PROC (Process)
(**passivation monolayer**; nanoscale phosphorous atom arrays created using STM for the fabrication of a silicon-based quantum computer)
RE.CNT 45 THERE ARE 45 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE

fabrication of a silicon-based quantum computer)
IT 12385-13-6, Hydrogen atom, processes
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PROC (Process)
(**passivation monolayer;** nanoscale phosphorous atom arrays created using STM for the fabrication of a silicon-based quantum computer)
RE.CNT 45 THERE ARE 45 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE

ANSWER 4 OF 4 CAPLUS COPYRIGHT 2004 ACS on STN

AN 1982:446413 CAPLUS

DN 97:46413

ED Entered STN: 12 May 1984

TI Nature of current maximums on unsteady-state polarization curves of indium in weakly alkaline solutions

AU Sebeka, B.; Juodiene, T.; Juodkazis, K.

CS USSR

SO Issled. Obl. Osazhdeniya Met., Mater. Resp. Konf. Elektrokhim. Lit. SSR, 18th (1981), 201-6 Publisher: Akad. Nauk Lit. SSR, Inst. Khim. Khim. Tekhnol., Vilnius, USSR.
CODEN: 47URAG

DT Conference

LA Russian

CC 72-2 (Electrochemistry)

AB A comparison of exptl. and calculated polarization curves for the discharge of an In hydroxide monolayer from an In electrode in NaClO4 solns. (ionic strength 3M, pH 12, temperature 20°) shows the electrode to be a 2nd-order metal-oxide electrode. During the cathodic process, the surface concentration of (OH)- is determined by the rate of hydroxide reduction (M + n(OH)- .dblharw. M(OH)n + ne) and the rate of removal into the bulk of the electrolyte of the (OH)- formed. In the anodic process, the (OH)- surface concentration is determined by the electrolyte pH and the ion supply from the bulk of the electrolyte. At n = 1, the coincidence of the curves indicates the cathodic current maximum to be due to the discharge of InOH, not In(OH)3. The InOH monolayer is the main course of passivation of the In electrode.

ST current max unsteady polarization indium; hydroxide indium **passivation monolayer** electrode

IT Electric current
(maximum, in unsteady-state polarization of indium)

IT Passivation
(of indium, in unsteady-state polarization)

IT Electrolytic polarization
(unsteady-state, current maximum in, of indium)

IT 7440-74-6, properties
RL: PRP (Properties)
(electrolytic polarization of, unsteady-state, current maximum in)

IT 32365-64-3P
RL: FORM (Formation, nonpreparative); PREP (Preparation)
(formation of, in unsteady-state polarization of indium, with current maximum)

ANSWER 4 OF 4 CAPLUS COPYRIGHT 2004 ACS on STN

AN 1982:446413 CAPLUS

DN 97:46413

ED Entered STN: 12 May 1984

TI Nature of current maximums on unsteady-state polarization curves of indium in weakly alkaline solutions

AU Sebeka, B.; Juodiene, T.; Juodkazis, K.

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SO Issled. Obl. Osazhdeniya Met., Mater. Resp. Konf. Elektrokhim. Lit. SSR, 18th (1981), 201-6 Publisher: Akad. Nauk Lit. SSR, Inst. Khim. Khim. Tekhnol., Vilnius, USSR.
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ST current max unsteady polarization indium; hydroxide indium **passivation monolayer** electrode

IT Electric current
(maximum, in unsteady-state polarization of indium)

IT Passivation
(of indium, in unsteady-state polarization)

IT Electrolytic polarization
(unsteady-state, current maximum in, of indium)

IT 7440-74-6, properties
RL: PRP (Properties)
(electrolytic polarization of, unsteady-state, current maximum in)

IT 32365-64-3P
RL: FORM (Formation, nonpreparative); PREP (Preparation)
(formation of, in unsteady-state polarization of indium, with current maximum)

ANSWER 6 OF 9 CAPLUS COPYRIGHT 2004 ACS on STN

AN 1986:468983 CAPLUS
DN 105:68983
ED Entered STN: 23 Aug 1986
TI The cation **monolayer** model for metal **passivation**. II. Kinetics of the active-passive transition
AU Griffin, G. L.
CS Dep. Chem. Eng. Mater. Sci., Univ. Minnesota, Minneapolis, MN, 55455, USA
SO Journal of the Electrochemical Society (1986), 133(7), 1315-20
CODEN: JESOAN; ISSN: 0013-4651
DT Journal
LA English
CC 72-6 (Electrochemistry)
Section cross-reference(s): 67
AB An anal. was made of the transient **passivation** kinetics expected for the recently proposed cation **monolayer** model for passive film formation. The theor. framework is developed using classical nucleation theory, as applied to the phase transition for the formation of a cation **monolayer** stabilized by attractive interactions between neighboring cations. Transient **passivation** curves are calculated for current vs. time following a step change of the **electrode** potential between active and passive potential regions, and for current vs. **voltage** during linear potentiodynamic sweeps in both directions across the transition potential. For the transient cases, the potential and amplitude of the maximum current during the active-passive transition are functions of the potentiodynamic sweep rate, and a pronounced hysteresis loop is predicted during potential cycles around the active-passive transition.
ST kinetics active passive transition model; **passivation** electrochem adsorbed cation model
IT Cations
(adsorbed, kinetics of active-passive transition in relation to)
IT Adsorbed substances
(cations, kinetics of active-passive transition in relation to)
IT Kinetics of **passivation**
Passivation
(electrochem., cation **monolayer** model for, active-passive transition in relation to)
IT Kinetics of oxidation
(electrochem., of metals, adsorbed cation model in relation to)

ANSWER 6 OF 9 CAPLUS COPYRIGHT 2004 ACS on STN

AN 1986:468983 CAPLUS

DN 105:68983

ED Entered STN: 23 Aug 1986

TI The cation **monolayer** model for metal **passivation**. II.
Kinetics of the active-passive transition

AU Griffin, G. L.

CS Dep. Chem. Eng. Mater. Sci., Univ. Minnesota, Minneapolis, MN, 55455, USA

SO Journal of the Electrochemical Society (1986), 133(7), 1315-20
CODEN: JESOAN; ISSN: 0013-4651

DT Journal

LA English

CC 72-6 (Electrochemistry)
Section cross-reference(s): 67

AB An anal. was made of the transient **passivation** kinetics expected for the recently proposed cation **monolayer** model for passive film formation. The theor. framework is developed using classical nucleation theory, as applied to the phase transition for the formation of a cation **monolayer** stabilized by attractive interactions between neighboring cations. Transient **passivation** curves are calculated for current vs. time following a step change of the **electrode** potential between active and passive potential regions, and for current vs. **voltage** during linear potentiodynamic sweeps in both directions across the transition potential. For the transient cases, the potential and amplitude of the maximum current during the active-passive transition are functions of the potentiodynamic sweep rate, and a pronounced hysteresis loop is predicted during potential cycles around the active-passive transition.

ST kinetics active passive transition model; **passivation**
electrochem adsorbed cation model

IT Cations
(adsorbed, kinetics of active-passive transition in relation to)

IT Adsorbed substances
(cations, kinetics of active-passive transition in relation to)

IT Kinetics of **passivation**
Passivation
(electrochem., cation **monolayer** model for, active-passive transition in relation to)

IT Kinetics of oxidation
(electrochem., of metals, adsorbed cation model in relation to)

ANSWER 10 OF 10 CAPLUS COPYRIGHT 2004 ACS on STN

AN   1969:466634 CAPLUS
DN   71:66634
ED   Entered STN: 12 May 1984
TI   **Passivation** of zinc amalgam in alkaline solutions
AU   Armstrong, Ronald Dixon; Bulman, G. M.; Thirsk, Harold R.
CS   Univ. Newcastle upon Tyne, Newcastle upon Tyne, UK
SO   Journal of Electroanalytical Chemistry and Interfacial Electrochemistry (1969), 22(1), 55-62
      CODEN: JEIEBC; ISSN: 0022-0728
DT   Journal
LA   English
CC   77 (Electrochemistry)
AB   The **passivation** of 1 atomic % Zn amalgam in 0.01-0.1M NaOH containing NaCl, NaNO3, and Na2SO4 supporting electrolyte is studied by sq. pulse potentiostatic measurements, impedance measurements, and electron diffraction of the surface film. The **passivation** is due to the formation of a phase **monolayer** on the **electrode** surface. The layer could not pos. be identified as ZnO because the techniques used were not in situ and there was some evidence for Zn hydroxides at -0.7 v. The layer is formed by a mechanism involving 2 dimensional nucleation. No specific OH- adsorption can be **detected** at potentials prior to the active-passive transition.
ST   **passivation** Zn amalgams; amalgams Zn **passivation**; zinc amalgams **passivation**; alk solns Zn amalgams **passivation**; surface layers Zn amalgams **passivation**
IT   Zinc alloys, containing
         (amalgams, **passivation** of, in alkaline solns.)
IT   **Passivation**
         (of zinc amalgams, in alkaline solns.)
IT   Amalgams
         (zinc, **passivation** of, in alkaline solns.)

ANSWER 10 OF 10 CAPLUS COPYRIGHT 2004 ACS on STN

AN 1969:466634 CAPLUS

DN 71:66634

ED Entered STN: 12 May 1984

TI **Passivation** of zinc amalgam in alkaline solutions

AU Armstrong, Ronald Dixon; Bulman, G. M.; Thirsk, Harold R.

CS Univ. Newcastle upon Tyne, Newcastle upon Tyne, UK

SO Journal of Electroanalytical Chemistry and Interfacial Electrochemistry (1969), 22(1), 55-62
CODEN: JEIEBC; ISSN: 0022-0728

DT Journal

LA English

CC 77 (Electrochemistry)

AB The **passivation** of 1 atomic % Zn amalgam in 0.01-0.1M NaOH containing NaCl, NaNO3, and Na2SO4 supporting electrolyte is studied by sq. pulse potentiostatic measurements, impedance measurements, and electron diffraction of the surface film. The **passivation** is due to the formation of a phase **monolayer** on the **electrode** surface. The layer could not pos. be identified as ZnO because the techniques used were not in situ and there was some evidence for Zn hydroxides at -0.7 v. The layer is formed by a mechanism involving 2 dimensional nucleation. No specific OH- adsorption can be **detected** at potentials prior to the active-passive transition.

ST **passivation** Zn amalgams; amalgams Zn **passivation;** zinc amalgams **passivation;** alk solns Zn amalgams **passivation** ; surface layers Zn amalgams **passivation**

IT Zinc alloys, containing
(amalgams, **passivation** of, in alkaline solns.)

IT **Passivation**
(of zinc amalgams, in alkaline solns.)

IT Amalgams
(zinc, **passivation** of, in alkaline solns.)

ANSWER 6 OF 10 CAPLUS COPYRIGHT 2004 ACS on STN

AN 1992:243703 CAPLUS
DN 116:243703
ED Entered STN: 13 Jun 1992
TI X-ray photoelectron spectroscopic studies of interfacial chemistry at n-type silicon/liquid junctions
AU Tufts, Bruce J.; Kumar, Amit; Bansal, Ashish; Lewis, Nathan S.
CS Div. Chem. Chem. Eng., California Inst. Technol., Pasadena, CA, 91125, USA
SO Journal of Physical Chemistry (1992), 96(11), 4581-92
CODEN: JPCHAX; ISSN: 0022-3654
DT Journal
LA English
CC 72-2 (Electrochemistry)
Section cross-reference(s): 66, 74, 76
AB The surface chemical of n-type Si **electrodes** that had been etched, exposed to electrolyte, and electrochem. cycled has been probed using high-resolution XPS. The n-Si surfaces etched in hydrofluoric acid-ethanol solns. (in air or N2 ambients) displayed spectra in the Si 2p region that were free of **detectable** substrate oxide signals (≤5 + 10-11 mol cm-2 SiO2; equivalent to ≤4% of a **monolayer**). Exposure of HF-C2H5OH etched or 49% HF(aqueous) etched n-Si surfaces to an electrolyte solution containing CH3OH, dimethylferrocene (Me2Fc), and dimethylferricenium (Me2Fc+) generated very low levels, ≤ (2 ± 1) + 10-10 mol cm-2, of silicon suboxides. Only sub-**monolayer** levels of SiOx, (4 ± 2) + 10-10 mol cm-2, were **detected** after electrochem. cycling of illuminated n-Si anodes in contact with CH3OH-Me2Fe+/0 electrolytes. Even n-Si photoanodes maintained at short circuit with the CH3OH-Me2Fc+/0 electrolyte for substantial periods (>1000 C cm-2 anodic charge passed) formed less than a single **monolayer** of strained SiO2 at the silicon surface. Deliberate anodization of the Si surface in these electrolyte solns. yielded controlled amts. of thicker (8-10 Å) SiO2 overlayers; these overlayers provided a useful oxide for the formation of high-performance metal-insulator-semiconductor device structures. These studies demonstrate that HF-C2H5OH- or HF(aqueous)-etched n-Si surfaces are remarkably resistant to oxide formation during photoelectrochem. cycling in CH3OH-based electrolytes, and that the outstanding photoelectrochem. I-V properties of the n-Si/CH3OH-Me2Fc+/0 junction are not a result of formation of a pssivating oxide overlayers on the Si surface.
ST silicon electrolyte interface XPS; surface analysis silicon oxide; etching **passivation** silicon surface; photoanode silicon semiconductor junction
IT Anodization
Etching
Passivation
(of silicon, in alc.-electrolyte solution)
IT Surface analysis
(of silicon, in electrolyte solution, etching effect on)
IT Semiconductor junctions
(silicon-electrolyte, **passivation** in)
IT Interface
(silicon-electrolyte, silica formation at)
IT Redox reaction
(photoelectrochem., of dimethylferrocene, on silicon)
IT Anodes
(photoelectrochem., silicon)
IT 7791-03-9, Lithium perchlorate
RL: PRP (Properties)
(electrochem. anodization and electrochem. redox reaction of dimethylferrocene in solution containing)
IT 7664-39-3, Hydrofluoric acid, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)

ANSWER 6 OF 10 CAPLUS COPYRIGHT 2004 ACS on STN

AN 1992:243703 CAPLUS

DN 116:243703

ED Entered STN: 13 Jun 1992

TI X-ray photoelectron spectroscopic studies of interfacial chemistry at n-type silicon/liquid junctions

AU Tufts, Bruce J.; Kumar, Amit; Bansal, Ashish; Lewis, Nathan S.

CS Div. Chem. Chem. Eng., California Inst. Technol., Pasadena, CA, 91125, USA

SO Journal of Physical Chemistry (1992), 96(11), 4581-92
CODEN: JPCHAX; ISSN: 0022-3654

DT Journal

LA English

CC 72-2 (Electrochemistry)
Section cross-reference(s): 66, 74, 76

AB The surface chemical of n-type Si **electrodes** that had been etched, exposed to electrolyte, and electrochem. cycled has been probed using high-resolution XPS. The n-Si surfaces etched in hydrofluoric acid-ethanol solns. (in air or N2 ambients) displayed spectra in the Si 2p region that were free of **detectable** substrate oxide signals (≤5 + 10-11 mol cm-2 SiO2; equivalent to ≤4% of a **monolayer**). Exposure of HF-C2H5OH etched or 49% HF(aqueous) etched n-Si surfaces to an electrolyte solution containing CH3OH, dimethylferrocene (Me2Fc), and dimethylferricenium (Me2Fc+) generated very low levels, ≤ (2 ± 1) + 10-10 mol cm-2, of silicon suboxides. Only sub-**monolayer** levels of SiOx, (4 ± 2) + 10-10 mol cm-2, were **detected** after electrochem. cycling of illuminated n-Si anodes in contact with CH3OH-Me2Fe+/0 electrolytes. Even n-Si photoanodes maintained at short circuit with the CH3OH-Me2Fc+/0 electrolyte for substantial periods (>1000 C cm-2 anodic charge passed) formed less than a single **monolayer** of strained SiO2 at the silicon surface. Deliberate anodization of the Si surface in these electrolyte solns. yielded controlled amts. of thicker (8-10 Å) SiO2 overlayers; these overlayers provided a useful oxide for the formation of high-performance metal-insulator-semiconductor device structures. These studies demonstrate that HF-C2H5OH- or HF(aqueous)-etched n-Si surfaces are remarkably resistant to oxide formation during photoelectrochem. cycling in CH3OH-based electrolytes, and that the outstanding photoelectrochem. I-V properties of the n-Si/CH3OH-Me2Fc+/0 junction are not a result of formation of a pssivating oxide overlayers on the Si surface.

ST silicon electrolyte interface XPS; surface analysis silicon oxide; etching **passivation** silicon surface; photoanode silicon semiconductor junction

IT Anodization
Etching
Passivation
(of silicon, in alc.-electrolyte solution)

IT Surface analysis
(of silicon, in electrolyte solution, etching effect on)

IT Semiconductor junctions
(silicon-electrolyte, **passivation** in)

IT Interface
(silicon-electrolyte, silica formation at)

IT Redox reaction
(photoelectrochem., of dimethylferrocene, on silicon)

IT Anodes
(photoelectrochem., silicon)

IT 7791-03-9, Lithium perchlorate
RL: PRP (Properties)
(electrochem. anodization and electrochem. redox reaction of dimethylferrocene in solution containing)

IT 7664-39-3, Hydrofluoric acid, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)

(etching with, of silicon, silicon oxide formation in relation to)
IT 11126-22-0P, Silicon oxide
RL: FORM (Formation, nonpreparative); PREP (Preparation)
(formation of, at silicon interface, during etching)
IT 7631-86-9P, Silicon dioxide, preparation
RL: FORM (Formation, nonpreparative); PREP (Preparation)
(formation of, during anodization of silicon, in alc. solution)
IT 7440-21-3, Silicon, properties
RL: PRP (Properties)
(interface anal. of, in alc. solution, with dimethylferrocene)
IT 64-17-5, Ethanol, uses
RL: USES (Uses)
(photoelectrochem. cycling of silicon in solution of, oxide formation in relation to)
IT 67-56-1, Methanol, uses
RL: USES (Uses)
(photoelectrochem. etching of silicon in solution containing, oxide formation in relation to)
IT 1291-47-0, Dimethylferrocene 12276-63-0
RL: RCT (Reactant); RACT (Reactant or reagent)
(redox reaction of, photoelectrochem., on silicon)

(etching with, of silicon, silicon oxide formation in relation to)
IT 11126-22-0P, Silicon oxide
RL: FORM (Formation, nonpreparative); PREP (Preparation)
(formation of, at silicon interface, during etching)
IT 7631-86-9P, Silicon dioxide, preparation
RL: FORM (Formation, nonpreparative); PREP (Preparation)
(formation of, during anodization of silicon, in alc. solution)
IT 7440-21-3, Silicon, properties
RL: PRP (Properties)
(interface anal. of, in alc. solution, with dimethylferrocene)
IT 64-17-5, Ethanol, uses
RL: USES (Uses)
(photoelectrochem. cycling of silicon in solution of, oxide formation in relation to)
IT 67-56-1, Methanol, uses
RL: USES (Uses)
(photoelectrochem. etching of silicon in solution containing, oxide formation
in relation to)
IT 1291-47-0, Dimethylferrocene 12276-63-0
RL: RCT (Reactant); RACT (Reactant or reagent)
(redox reaction of, photoelectrochem., on silicon)

ANSWER 73 OF 84 CAPLUS COPYRIGHT 2004 ACS on STN

AN 1968:464095 CAPLUS

DN 69:64095

ED Entered STN: 12 May 1984

TI **Passivation** of anodic reactions

AU Schuldiner, Sigmund

CS Nav. Res. Lab., Washington, DC, USA

SO Journal of the Electrochemical Society (**1968**), 115(9), 897-9
CODEN: JESOAN; ISSN: 0013-4651

DT Journal

LA English

CC 77 (Electrochemistry)

AB Extending the Wagner definition of passivity to anodic reactions of chemical species on inert **electrodes**, it is shown that initiation of **passivation** of a Pt **electrode** for the H oxidation reaction can be explained by small amts. (fraction of a **monolayer**) of adsorbed anions. Anion adsorption can effectively reduce the active **electrode** area, but the major **passivation** effect is the poisoning of catalytic sites which retard the catalytic reaction so that in most of the region where **passivation** occurs the reaction rate is controlled by the increased free energy of activation with increased potential. The change in sign from pos. to neg. of the dE/d (log i) kinetic relation can be explained by adsorption of a small number of anions and is limited when the active sites are essentially saturated Dermasorbed O atoms in addition to sulfate ions can have a strong effect on the catalytic activity of Pt for the H oxidation reaction. This concept may be extended to other retarded anodic reactions and to the **passivation** of Fe in particular.

ST **passivation** anodic reactions; anodic reactions **passivation**; adsorption **passivation** anodic reactions

IT **Passivation**
(of platinum oxidation catalysts, adsorbed oxygen atoms and sulfate ions in relation to)

IT 7782-44-7, uses and miscellaneous
RL: USES (Uses)
(absorbed by platinum, catalytic oxidation of hydrogen in relation to)

IT 14808-79-8, Sulfate, properties
RL: PRP (Properties)
(absorbed by platinum, catalytic oxidation of hydrogen in relation to)

IT 7440-06-4, uses and miscellaneous
RL: CAT (Catalyst use); USES (Uses)
(oxidation catalysts, adsorbed oxygen and sulfate in relation to)

IT 7439-89-6, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(**passivation** of)

ANSWER 73 OF 84 CAPLUS COPYRIGHT 2004 ACS on STN

AN 1968:464095 CAPLUS
DN 69:64095
ED Entered STN: 12 May 1984
TI **Passivation** of anodic reactions
AU Schuldiner, Sigmund
CS Nav. Res. Lab., Washington, DC, USA
SO Journal of the Electrochemical Society (**1968**), 115(9), 897-9
CODEN: JESOAN; ISSN: 0013-4651
DT Journal
LA English
CC 77 (Electrochemistry)
AB Extending the Wagner definition of passivity to anodic reactions of chemical species on inert **electrodes,** it is shown that initiation of **passivation** of a Pt **electrode** for the H oxidation reaction can be explained by small amts. (fraction of a **monolayer**) of adsorbed anions. Anion adsorption can effectively reduce the active **electrode** area, but the major **passivation** effect is the poisoning of catalytic sites which retard the catalytic reaction so that in most of the region where **passivation** occurs the reaction rate is controlled by the increased free energy of activation with increased potential. The change in sign from pos. to neg. of the dE/d (log i) kinetic relation can be explained by adsorption of a small number of anions and is limited when the active sites are essentially saturated Dermasorbed O atoms in addition to sulfate ions can have a strong effect on the catalytic activity of Pt for the H oxidation reaction. This concept may be extended to other retarded anodic reactions and to the **passivation** of Fe in particular.
ST **passivation** anodic reactions; anodic reactions **passivation;** adsorption **passivation** anodic reactions
IT **Passivation**
(of platinum oxidation catalysts, adsorbed oxygen atoms and sulfate ions in relation to)
IT 7782-44-7, uses and miscellaneous
RL: USES (Uses)
(absorbed by platinum, catalytic oxidation of hydrogen in relation to)
IT 14808-79-8, Sulfate, properties
RL: PRP (Properties)
(absorbed by platinum, catalytic oxidation of hydrogen in relation to)
IT 7440-06-4, uses and miscellaneous
RL: CAT (Catalyst use); USES (Uses)
(oxidation catalysts, adsorbed oxygen and sulfate in relation to)
IT 7439-89-6, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(**passivation** of)

ANSWER 1 OF 1 CAPLUS COPYRIGHT 2004 ACS on STN
AN 1995:134431 CAPLUS
DN 122:40801
ED Entered STN: 08 Nov 1994
TI **Passivation** and gating at the **electrode**-solution
interface via monomolecular Langmuir-Blodgett films. Mechanism of
alkanethiol **binding** to gold
AU Majda, Marcin
CS Department Chemistry, University California, Berkeley, CA, 94720, USA
SO ACS Symposium Series (**1994**), 561(INTERFACIAL DESIGN AND CHEMICAL
SENSING), 135-44
CODEN: ACSMC8; ISSN: 0097-6156
DT Journal
LA English
CC 72-2 (Electrochemistry)
Section cross-reference(s): 56, 66
AB To define molecularly active sites at the **electrode** surface,
monomol. Langmuir-Blodgett films are being designed to carry out two
functions: **passivation** and gating. This new strategy requires
one to produce monomol. LB films of exquisitely low defect level. To
accomplish this, the authors have studied the mechanism of octadecanethiol
(C18SH) **binding** to gold under potentiostatic conditions, to
better understand C18SH passivating properties. The approach involves
constant potential current measurements taken during the LB transfer of
monolayers that contain C18SH from the air/water interface onto
gold substrates. Thiol-gold coupling involves a potential-dependent
partial electron transfer from sulfur to gold of 0.26 electron per thiol
at -0.3 V, and 0.4 electron at 0.7 V vs. SCE. The requirements of
electro-neutrality and zero capacitance of the emersed alkanethiol-coated
gold surface lead to a postulate that an equivalent number of protons are
released during the C18SH LB transfer.
ST octadecanethiol **binding** gold potentiostatic condition;
passivation gating **electrode** soln interface; alkanethiol
binding gold **electrode**
IT Electron exchange and Charge transfer
(in **binding** of octadecanethiol on gold)
IT **Passivation**
(**passivation** and gating at **electrode**-solution
interface via monomol. Langmuir-Blodgett films)
IT Electric current
(transients; in Langmuir-Blodgett transfer of octadecanethiol and
octadecanethiol/octadecyl alc. **monolayers** from HClO4 to gold)
IT Chemisorption
(electrochem., of octadecanethiol on gold)
IT 7601-90-3, Perchloric acid, uses
RL: NUU (Other use, unclassified); PRP (Properties); USES (Uses)
(current-time transients for Langmuir-Blodgett transfer of
octadecanethiol and octadecanethiol/octadecyl alc. **monolayers**
from HClO4 to gold from)
IT 2885-00-9, Octadecanethiol
RL: PEP (Physical, engineering or chemical process); PRP (Properties);
PROC (Process)
(mechanism of octadecanethiol **binding** to gold under
potentiostatic conditions)
IT 7440-57-5, Gold, uses
RL: DEV (Device component use); PEP (Physical, engineering or chemical
process); PRP (Properties); PROC (Process); USES (Uses)
(**passivation** and gating at **electrode**-solution
interface via monomol. Langmuir-Blodgett films and mechanism of
alkanethiol **binding** to gold)
IT 112-92-5, Octadecyl alcohol
RL: PEP (Physical, engineering or chemical process); PRP (Properties);

ANSWER 1 OF 1 CAPLUS COPYRIGHT 2004 ACS on STN

AN 1995:134431 CAPLUS

DN 122:40801

ED Entered STN: 08 Nov 1994

TI **Passivation** and gating at the **electrode**-solution interface via monomolecular Langmuir-Blodgett films. Mechanism of alkanethiol **binding** to gold

AU Majda, Marcin

CS Department Chemistry, University California, Berkeley, CA, 94720, USA

SO ACS Symposium Series (**1994**), 561(INTERFACIAL DESIGN AND CHEMICAL SENSING), 135-44
CODEN: ACSMC8; ISSN: 0097-6156

DT Journal

LA English

CC 72-2 (Electrochemistry)
Section cross-reference(s): 56, 66

AB To define molecularly active sites at the **electrode** surface, monomol. Langmuir-Blodgett films are being designed to carry out two functions: **passivation** and gating. This new strategy requires one to produce monomol. LB films of exquisitely low defect level. To accomplish this, the authors have studied the mechanism of octadecanethiol (C18SH) **binding** to gold under potentiostatic conditions, to better understand C18SH passivating properties. The approach involves constant potential current measurements taken during the LB transfer of **monolayers** that contain C18SH from the air/water interface onto gold substrates. Thiol-gold coupling involves a potential-dependent partial electron transfer from sulfur to gold of 0.26 electron per thiol at -0.3 V, and 0.4 electron at 0.7 V vs. SCE. The requirements of electro-neutrality and zero capacitance of the emersed alkanethiol-coated gold surface lead to a postulate that an equivalent number of protons are released during the C18SH LB transfer.

ST octadecanethiol **binding** gold potentiostatic condition; **passivation** gating **electrode** soln interface; alkanethiol **binding** gold **electrode**

IT Electron exchange and Charge transfer
(in **binding** of octadecanethiol on gold)

IT **Passivation**
(**passivation** and gating at **electrode**-solution interface via monomol. Langmuir-Blodgett films)

IT Electric current
(transients; in Langmuir-Blodgett transfer of octadecanethiol and octadecanethiol/octadecyl alc. **monolayers** from HClO4 to gold)

IT Chemisorption
(electrochem., of octadecanethiol on gold)

IT 7601-90-3, Perchloric acid, uses
RL: NUU (Other use, unclassified); PRP (Properties); USES (Uses)
(current-time transients for Langmuir-Blodgett transfer of octadecanethiol and octadecanethiol/octadecyl alc. **monolayers** from HClO4 to gold from)

IT 2885-00-9, Octadecanethiol
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process)
(mechanism of octadecanethiol **binding** to gold under potentiostatic conditions)

IT 7440-57-5, Gold, uses
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process); USES (Uses)
(**passivation** and gating at **electrode**-solution interface via monomol. Langmuir-Blodgett films and mechanism of alkanethiol **binding** to gold)

IT 112-92-5, Octadecyl alcohol
RL: PEP (Physical, engineering or chemical process); PRP (Properties);

PROC (Process)
(**passivation** and gating of gold **electrode** with
Langmuir-Blodgett film of octadecanethiol and)

=>

PROC (Process)
(**passivation** and gating of gold **electrode** with
Langmuir-Blodgett film of octadecanethiol and)

=>

ANSWER 9 OF 15 CAPLUS COPYRIGHT 2004 ACS on STN
AN 1994:446193 CAPLUS
DN 121:46193
ED Entered STN: 23 Jul 1994
TI Electro-optic waveguide deflector using a nonlinear optic film or liquid-crystal overlay cell for use in an optical pickup head
IN Revelli, Joseph F., Jr.; Penner, Thomas L.; Armstrong, Nancy J.; Robello, Douglas R.; Schildkraut, Jay S.
PA Eastman Kodak Co., USA
SO U.S., 23 pp.
CODEN: USXXAM
DT Patent
LA English
IC ICM G02B006-10
NCL 385008000
CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
Section cross-reference(s): 74, 75
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 5291567	A	19940301	US 1992-916422	19920721
	JP 06222400	A2	19940812	JP 1993-179070	19930720
PRAI	US 1992-916422		19920721		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
US 5291567	ICM	G02B006-10
	NCL	385008000

AB Electrooptical waveguide deflectors, appropriate for use in optical pickup heads, use any film exhibiting high second order susceptibility such as nonlinear optic organic Langmuir-Blodgett films or nonlinear optic organic poled polymer films, or a liquid-crystal overlay cell. The deflector comprises a base support, a planar **electrode** layer disposed on the base support, a first buffer layer atop the first **electrode** layer, and an optical waveguide layer overlying the first buffer layer and planar **electrode**. When nonlinear optic films are used to form the waveguide layer, a second buffer layer is disposed atop the waveguide layer, and a pair of spaced **electrodes** is disposed atop the second buffer layer. When a nematic-type liquid-crystal overlay cell is used, it is disposed atop a **passive** dielec. waveguide, and a pair of spaced **electrodes** is disposed on the under surface of the liquid-crystal cell cover plate. The spaced **electrodes** are shaped so that selectively applying an elec. field causes deflection to vary with the applied **voltage** according to the geometrical configuration of the spaced **electrodes**. Methods for fabricating the deflectors are also described.
ST nonlinear optical film electrooptical waveguide deflector; liq crystal overlay cell waveguide deflector; Langmuir Blodgett film electrooptical waveguide deflector
IT Liquid crystals
(electrooptical waveguide deflectors employing)
IT Adsorbed substances
(Langmuir-Blodgett **monolayers**, electrooptical waveguide deflectors employing)
IT Waveguides
(electrooptical, deflectors)
IT Recording apparatus
(optical heads, pick-up, electrooptical waveguide deflectors for)
IT 1120-28-1, Methyl arachidate 9011-15-8, Poly(isobutyl methacrylate)
14923-81-0, Cadmium arachidate 25189-00-8, Poly(tert-butyl methacrylate)

141432-19-1   149306-57-0
RL: USES (Uses)
(electrooptical waveguide deflectors employing Langmuir-Blodgett films containing)
IT 84136-28-7, ZLI-1289
RL: USES (Uses)
(electrooptical waveguide deflectors employing liquid-crystal overlay cells containing)
IT 506-30-9, Arachidic acid
RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction of, in Langmuir-Blodgett film preparation for electrooptical waveguide deflectors)

L8 ANSWER 10 OF 15 CAPLUS COPYRIGHT 2004 ACS on STN

141432-19-1   149306-57-0
RL: USES (Uses)
(electrooptical waveguide deflectors employing Langmuir-Blodgett films containing)
IT   84136-28-7, ZLI-1289
RL: USES (Uses)
(electrooptical waveguide deflectors employing liquid-crystal overlay cells containing)
IT   506-30-9, Arachidic acid
RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction of, in Langmuir-Blodgett film preparation for electrooptical waveguide deflectors)

L8   ANSWER 10 OF 15 CAPLUS

ANSWER 10 OF 15 CAPLUS COPYRIGHT 2004 ACS on STN
AN 1988:194677 CAPLUS
DN 108:194677
ED Entered STN: 28 May 1988
TI Electrochemical noise at **passive** iron
AU Nachstedt, K.; Heusler, K. E.
CS Inst. Metallkd. Metallphys., Tech. Univ. Clausthal, Clausthal-Zellerfeld, D-3392, Fed. Rep. Ger.
SO Electrochimica Acta (1988), 33(3), 311-21
CODEN: ELCAAV; ISSN: 0013-4686
DT Journal
LA English
CC 72-6 (Electrochemistry)
Section cross-reference(s): 55
AB With the described apparatus it was possible to measure (under potentiostatic conditions at frequencies .ltorsim.1 kHz) spectral densities of current noise comparable to the thermal noise at resistances of the order 1 MΩ. The spectral densities of the current noise at **passive** Fe microelectrodes in neutral borate or acetate buffer solns. were nearly frequency-independent at frequencies <10 Hz and increased with the square of the frequency at higher frequencies. The results are described by a nearly frequency-independent **voltage** noise source of intensity .apprx.1 order of magnitude larger than the thermal noise at the **electrode** impedance. The spectral densities of the current noise and the corresponding root-mean-square (rms) noise currents decreased with time during the approach to the steady state, with **electrode** potential due to the changes of the **electrode** impedance, and with **electrode** area. The current noise was increased by small heat flows through the **electrode**. At constant temperature, the noise was not affected by the exchange of electrolytes not containing ions causing pitting corrosion. The replacement of such inert electrolytes by electrolytes containing Cl- resulted in an immediate increase of the spectral d. of the current noise and a subsequent decrease towards a steady state before the end of the incubation time. The rms noise current in the presence of Cl-, normalized to the noise current in absence of Cl-, was independent of **electrode** potential and proportional to the logarithm of the ratio between the actual Cl- concentration and the critical
Cl-
concentration below which pitting never occurs. The **voltage** noise source became frequency-dependent with a maximum at .apprx.5 Hz. After onset of pitting, the low frequency noise of the 1/fa-type grew by several orders of magnitude. The results are explained in terms of local fluctuations of the thickness of the **passivating** film due to local adsorption of Cl- followed by currentless dissoln. of oxide **monolayers** and subsequent growth or further dissoln. of the oxide film at random sites.
ST noise electrochem **passive** iron; current noise **passive** iron; chloride effect noise **passive** iron; pitting corrosion iron; acetate buffer electrochem noise iron; borate buffer electrochem noise iron
IT **Passivity**
(of iron, electrochem. noise in acetate or borate buffered solns. with and without chloride in relation to)
IT Electric noise
(electrochem., at **passive** iron in acetate or borate buffered solution, chloride effect on)
IT 16887-00-6, Chloride, properties
RL: PRP (Properties)
(current noise for **passive** iron in presence of)
IT 64-19-7, Acetic acid, properties 127-09-3, Sodium acetate 11129-12-7, Borate
RL: PRP (Properties)

ANSWER 10 OF 15 CAPLUS COPYRIGHT 2004 ACS on STN
AN 1988:194677 CAPLUS
DN 108:194677
ED Entered STN: 28 May 1988
TI Electrochemical noise at **passive** iron
AU Nachstedt, K.; Heusler, K. E.
CS Inst. Metallkd. Metallphys., Tech. Univ. Clausthal, Clausthal-Zellerfeld, D-3392, Fed. Rep. Ger.
SO Electrochimica Acta (1988), 33(3), 311-21
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LA English
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concentration below which pitting never occurs. The **voltage** noise source became frequency-dependent with a maximum at .apprx.5 Hz. After onset of pitting, the low frequency noise of the 1/fa-type grew by several orders of magnitude. The results are explained in terms of local fluctuations of the thickness of the **passivating** film due to local adsorption of Cl- followed by currentless dissoln. of oxide **monolayers** and subsequent growth or further dissoln. of the oxide film at random sites.
ST noise electrochem **passive** iron; current noise **passive** iron; chloride effect noise **passive** iron; pitting corrosion iron; acetate buffer electrochem noise iron; borate buffer electrochem noise iron
IT **Passivity**
(of iron, electrochem. noise in acetate or borate buffered solns. with and without chloride in relation to)
IT Electric noise
(electrochem., at **passive** iron in acetate or borate buffered solution, chloride effect on)
IT 16887-00-6, Chloride, properties
RL: PRP (Properties)
(current noise for **passive** iron in presence of)
IT 64-19-7, Acetic acid, properties 127-09-3, Sodium acetate 11129-12-7, Borate
RL: PRP (Properties)

(current noise for **passive** iron in solution containing, effect of chloride on)

IT 7439-89-6, Iron, uses and miscellaneous

RL: USES (Uses)

(electrochem. noise at **passive** microelectrodes of, in acetate or borate buffered solns., chloride effect on)

(current noise for **passive** iron in solution containing, effect of chloride on)

IT 7439-89-6, Iron, uses and miscellaneous

RL: USES (Uses)

(electrochem. noise at **passive** microelectrodes of, in acetate or borate buffered solns., chloride effect on)

ANSWER 9 OF 15 CAPLUS COPYRIGHT 2004 ACS on STN
AN 1994:446193 CAPLUS
DN 121:46193
ED Entered STN: 23 Jul 1994
TI Electro-optic waveguide deflector using a nonlinear optic film or liquid-crystal overlay cell for use in an optical pickup head
IN Revelli, Joseph F., Jr.; Penner, Thomas L.; Armstrong, Nancy J.; Robello, Douglas R.; Schildkraut, Jay S.
PA Eastman Kodak Co., USA
SO U.S., 23 pp.
CODEN: USXXAM
DT Patent
LA English
IC ICM G02B006-10
NCL 385008000
CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
Section cross-reference(s): 74, 75
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 5291567	A	19940301	US 1992-916422	19920721
	JP 06222400	A2	19940812	JP 1993-179070	19930720
PRAI	US 1992-916422		19920721		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
US 5291567	ICM	G02B006-10
	NCL	385008000

AB Electrooptical waveguide deflectors, appropriate for use in optical pickup heads, use any film exhibiting high second order susceptibility such as nonlinear optic organic Langmuir-Blodgett films or nonlinear optic organic poled polymer films, or a liquid-crystal overlay cell. The deflector comprises a base support, a planar **electrode** layer disposed on the base support, a first buffer layer atop the first **electrode** layer, and an optical waveguide layer overlying the first buffer layer and planar **electrode**. When nonlinear optic films are used to form the waveguide layer, a second buffer layer is disposed atop the waveguide layer, and a pair of spaced **electrodes** is disposed atop the second buffer layer. When a nematic-type liquid-crystal overlay cell is used, it is disposed atop a **passive** dielec. waveguide, and a pair of spaced **electrodes** is disposed on the under surface of the liquid-crystal cell cover plate. The spaced **electrodes** are shaped so that selectively applying an elec. field causes deflection to vary with the applied **voltage** according to the geometrical configuration of the spaced **electrodes**. Methods for fabricating the deflectors are also described.
ST nonlinear optical film electrooptical waveguide deflector; liq crystal overlay cell waveguide deflector; Langmuir Blodgett film electrooptical waveguide deflector
IT Liquid crystals
(electrooptical waveguide deflectors employing)
IT Adsorbed substances
(Langmuir-Blodgett **monolayers**, electrooptical waveguide deflectors employing)
IT Waveguides
(electrooptical, deflectors)
IT Recording apparatus
(optical heads, pick-up, electrooptical waveguide deflectors for)
IT 1120-28-1, Methyl arachidate 9011-15-8, Poly(isobutyl methacrylate)
14923-81-0, Cadmium arachidate 25189-00-8, Poly(tert-butyl methacrylate)

ANSWER 13 OF 15 CAPLUS COPYRIGHT 2004 ACS on STN

AN 1966:16664 CAPLUS

DN 64:16664

OREF 64:3012b-c

ED Entered STN: 22 Apr 2001

TI Oxidation of hydrogen on nickel **electrodes** in sodium hydroxide solution

AU O'Brien, R. N.; Rao, K. V. N.

CS Univ. Alberta, Edmonton, Can.

SO Journal of the Electrochemical Society (1965), 112(12), 1245-8
CODEN: JESOAN; ISSN: 0013-4651

DT Journal

LA English

CC 15 (Electrochemistry)

AB Anodic polarization measurements are used to elucidate the mechanism of electrochem. oxidation of H on Ni **electrodes** in NaOH. Potentiostatic expts. gave current-**voltage** curves for Ni **electrodes** in 0.1, 0.5, and 1.0N NaOH which were $Ni(OH)_2$ **passivation** curves. These curves had a peak current that increased with NaOH concentration Coverage of the order of 1 or 2 **monolayers** of hydroxide suffices to reach **passivation**. This decreased the rate of H oxidation with increasing potential because of the decrease in the availability of surface uncovered by oxide. The polarization is slightly lower in a solution stirred with H than in a solution stirred with He because of the participation of dissolved H in the **electrode** reaction.

IT Oxidation
(electrochem. or electrolytic, of H on Ni **electrodes** in NaOH)

IT **Electrodes**
(nickel, H oxidation at, in NaOH)

IT **Passivation**
(of nickel, H oxidation and)

IT Polarization (electrolytic)
(of nickel, in H oxidation in NaOH)

IT 7440-02-0, Nickel
(**electrodes**, H oxidation at, in NaOH)

IT 1310-73-2, Sodium hydroxide
(hydrogen oxidation on Ni **electrodes** in solns. containing)

IT 1333-74-0, Hydrogen
(oxidation of, on Ni **electrodes** in NaOH)

ANSWER 7 OF 8 CAPLUS COPYRIGHT 2004 ACS on STN

AN   1990:412571 CAPLUS
DN   113:12571
ED   Entered STN: 06 Jul 1990
TI   Electrochemical properties of **covalently** bonded silane amphiphile **monolayers** on a tin dioxide electrode
AU   Okahata, Yoshio; Yokobori, Masatoshi; Ebara, Yasuhito; Ebato, Hiroshi; Ariga, Katsuhiko
CS   Dep. Polym. Chem., Tokyo Inst. Technol., Tokyo, 152, Japan
SO   Langmuir (**1990**), 6(6), 1148-53
      CODEN: LANGD5; ISSN: 0743-7463
DT   Journal
LA   English
CC   66-4 (Surface Chemistry and Colloids)
      Section cross-reference(s): 72
AB   A **monolayer** of atriethoxysilane amphiphile having 2 18-carbon alkyl chains (2C18Si) was polymerized to form a Si-O-Si linkage on an acidic water subphase, transferred onto a SnO2 electrode by a Langmuir-Blodgett (LB) technique, and then **covalently** immobilized with Si-O-Sn linkages on the electrode. The polymerized and **covalently** immobilized 2C18Si **monolayer** was much more stable on the electrode in harsh aqueous conditions than were noncovalently bonded **monolayers**. The 2C18Si **monolayer** impeded the oxidation of Fe(CN)64- as seen in the ratio of peak currents at the **monolayer** -covered and uncovered electrodes (ip/ip0 = 0.2). The reactivity could be controlled reversibly by the phase transition from solid to liquid crystalline state of the **monolayer**. The value ip/ip0 = 0.2 indicates that the 2C18Si **monolayer** on the SnO2 electrode cannot completely block the penetration of ferrocyanide ions and still contains pinhole defects in the **monolayer**, probably because the SnO2 electrode has the hydrophilic and rough surface of metal oxides. These defects can be eliminated completely by adsorbing a small amount of a long-chain alc. (C14OH to C18OH) into the **monolayer** but not by adsorbing branched bulky alcs. or short-chain alcs. (C6OH to C10OH).
ST   adsorbed silane amphiphile tin dioxide electrode; electrochem property silane amphiphile **monolayer**; ferrocyanide oxidn tin dioxide electrode; **passivation** tin dioxide electrode surface
IT   Adsorption
        (of fatty alcs., on silane amphiphile **monolayers** immobilized on tin dioxide electrode surface)
IT   Oxidation, electrochemical
        (of ferrocyanide, on tin dioxide electrodes coated with silane amphiphile **monolayers**)
IT   Surface energy
        (of silane amphiphile **monolayers**, immobilized on tin dioxide electrode)
IT   Adsorbed substances
        (silane amphiphile **monolayers**, immobilization of, on tin dioxide electrode surface)
IT   Alcohols, properties
      RL: PEP (Physical, engineering or chemical process); PROC (Process)
        (fatty, adsorption of, on silane amphiphile **monolayers** immobilized on tin dioxide electrode)
IT   57-11-4, Stearic acid, uses and miscellaneous
      RL: USES (Uses)
        (adsorbed **monolayers** on tin dioxide electrode, electrochem. properties in relation to)
IT   6865-35-6, Barium stearate   37519-63-4
      RL: PRP (Properties)
        (adsorbed **monolayers** on tin dioxide electrode, electrochem. properties in relation to)
IT   105442-22-6   121231-18-3   121231-20-7

RL: PRP (Properties)
(adsorbed **monolayers**, immobilization of, on tin dioxide electrode)

IT 111-27-3, Hexyl alcohol, properties 111-87-5, Octyl alcohol, properties 112-30-1, Decyl alcohol 112-53-8, Dodecyl alcohol 112-72-1, Tetradecyl alcohol 112-92-5, Octadecyl alcohol 36653-82-4, Hexadecyl alcohol
RL: PEP (Physical, engineering or chemical process); PROC (Process)
(adsorption of, on silane amphiphile **monolayers** immobilized on tin dioxide electrode)

IT 18282-10-5, Tin oxide (SnO_2)
RL: PRP (Properties)
(electrochem. properties of adsorbed **monolayers** on electrode containing)

IT 121231-18-3D, reaction products with tin dioxide
RL: PRP (Properties)
(surface, electrode properties in relation to)

ANSWER 7 OF 8 CAPLUS COPYRIGHT 2004 ACS on STN
AN 1990:412571 CAPLUS
DN 113:12571
ED Entered STN: 06 Jul 1990
TI Electrochemical properties of **covalently** bonded silane amphiphile **monolayers** on a tin dioxide electrode
AU Okahata, Yoshio; Yokobori, Masatoshi; Ebara, Yasuhito; Ebato, Hiroshi; Ariga, Katsuhiko
CS Dep. Polym. Chem., Tokyo Inst. Technol., Tokyo, 152, Japan
SO Langmuir (**1990**), 6(6), 1148-53
CODEN: LANGD5; ISSN: 0743-7463
DT Journal
LA English
CC 66-4 (Surface Chemistry and Colloids)
Section cross-reference(s): 72
AB A **monolayer** of atriethoxysilane amphiphile having 2 18-carbon alkyl chains (2C18Si) was polymerized to form a Si-O-Si linkage on an acidic water subphase, transferred onto a SnO2 electrode by a Langmuir-Blodgett (LB) technique, and then **covalently** immobilized with Si-O-Sn linkages on the electrode. The polymerized and **covalently** immobilized 2C18Si **monolayer** was much more stable on the electrode in harsh aqueous conditions than were noncovalently bonded **monolayers**. The 2C18Si **monolayer** impeded the oxidation of Fe(CN)64- as seen in the ratio of peak currents at the **monolayer** -covered and uncovered electrodes (ip/ip0 = 0.2). The reactivity could be controlled reversibly by the phase transition from solid to liquid crystalline state of the **monolayer**. The value ip/ip0 = 0.2 indicates that the 2C18Si **monolayer** on the SnO2 electrode cannot completely block the penetration of ferrocyanide ions and still contains pinhole defects in the **monolayer**, probably because the SnO2 electrode has the hydrophilic and rough surface of metal oxides. These defects can be eliminated completely by adsorbing a small amount of a long-chain alc. (C14OH to C18OH) into the **monolayer** but not by adsorbing branched bulky alcs. or short-chain alcs. (C6OH to C10OH).
ST adsorbed silane amphiphile tin dioxide electrode; electrochem property silane amphiphile **monolayer**; ferrocyanide oxidn tin dioxide electrode; **passivation** tin dioxide electrode surface
IT Adsorption
(of fatty alcs., on silane amphiphile **monolayers** immobilized on tin dioxide electrode surface)
IT Oxidation, electrochemical
(of ferrocyanide, on tin dioxide electrodes coated with silane amphiphile **monolayers**)
IT Surface energy
(of silane amphiphile **monolayers**, immobilized on tin dioxide electrode)
IT Adsorbed substances
(silane amphiphile **monolayers**, immobilization of, on tin dioxide electrode surface)
IT Alcohols, properties
RL: PEP (Physical, engineering or chemical process); PROC (Process)
(fatty, adsorption of, on silane amphiphile **monolayers** immobilized on tin dioxide electrode)
IT 57-11-4, Stearic acid, uses and miscellaneous
RL: USES (Uses)
(adsorbed **monolayers** on tin dioxide electrode, electrochem. properties in relation to)
IT 6865-35-6, Barium stearate 37519-63-4
RL: PRP (Properties)
(adsorbed **monolayers** on tin dioxide electrode, electrochem. properties in relation to)
IT 105442-22-6 121231-18-3 121231-20-7

RL: PRP (Properties)
(adsorbed **monolayers,** immobilization of, on tin dioxide electrode)

IT 111-27-3, Hexyl alcohol, properties 111-87-5, Octyl alcohol, properties 112-30-1, Decyl alcohol 112-53-8, Dodecyl alcohol 112-72-1, Tetradecyl alcohol 112-92-5, Octadecyl alcohol 36653-82-4, Hexadecyl alcohol
RL: PEP (Physical, engineering or chemical process); PROC (Process)
(adsorption of, on silane amphiphile **monolayers** immobilized on tin dioxide electrode)

IT 18282-10-5, Tin oxide (SnO2)
RL: PRP (Properties)
(electrochem. properties of adsorbed **monolayers** on electrode containing)

IT 121231-18-3D, reaction products with tin dioxide
RL: PRP (Properties)
(surface, electrode properties in relation to)